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| 10/540,399 | 02/22/2006 | Ryouichi Takayama | 2005-1045A | 9711 |
| 52349 7590 09/03/2008 WENDEROTH, LIND & PONACK L.L.P. 2033 K. STREET, NW SUITE 800 WASHINGTON, DC 20006 | | | | |
| EXAMINER | | | | |
| SUMMONS, BARBARA | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/540,399

Applicant(s)

TAKAYAMA ET AL.

Examiner

BARBARA SUMMONS

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 30-58 is/are pending in the application.
- 4a) Of the above claim(s) 32,33 and 39-57 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 30,31,35,36,38 and 58 is/are rejected.
- 7) ☒ Claim(s) 34 and 37 is/are objected to.
- 8) ☒ Claim(s) 30-58 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 6/23/05 & 5/29/08
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Species I in the reply filed on May 27, 2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 32, 33 and 39-57 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected Species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on May 27, 2008.

Claim Objections

3. Claims 30 and 34-36 are objected to because of the following informalities:

In claim 30, in order to avoid confusion and to be sure that the last line of the claim is considered to recite positive claim features, the parentheses around the equations at the last line of the claim should be deleted. That is, parentheses can be used to indicate asides and statements or words that are not necessarily claim features such as the parentheses around the status of the claim, for example.

Similarly, the parentheses around the last line of claim 34 should also be deleted.

In claims 34-36, on line 1 of each of the claims, and in claim 30 at line 4 thereof, the Examiner objects to the use of the word "if" which also is not indicative of a positively claimed feature. For example, the use of the recitation "if the substrate is a lithium-tantalate substrate..." (see claim 36) also means that if it is not a lithium tantalate

substrate, then the remainder of the claimed features can be ignored, i.e., given no patentable weight. In other words, claims must be particular and definitive and not deal in speculation such as indicated by "if" clauses. In each instance, the Examiner strongly suggests that the word "if" be deleted, since this would not appear to affect the scope of the claims.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 30, 31, 35, 36 and 38 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ohkubo et al. U.S. 5,923,231.

Fig. 7 of Ohkubo et al. discloses an electronic part which includes a substrate 10, a comb-type electrode 12 disposed on an upper surface of the substrate and a protective film 18 that covers the comb-type electrode and has an uneven shape at a top surface thereof, characterized in that a height from the surface of the substrate that is in contact with the protective film to a top part of a convex portion of the protective film is $t = H_m + H_{p1}$, a height from that same surface of the substrate to a bottom part of a concave portion of the protective film is $t_1 = H_{p2}$, a height $(t - t_1)$ from a top part of the convex portion of the protective film to the bottom part of the concave portion of the

protective film is $t_2=(t-t_1)=H_m+H_{p1}-H_{p2}$, a pitch of the comb-type electrode is $p=P$, a width of one electrode finger is $p_1=M$, the width between electrode fingers is $p_2=P-M=M$ since the width of the electrode fingers equals the gap between electrode fingers equals a quarter of a wavelength, wherein the pitch is $\frac{1}{2}$ the wavelength (see e.g. col. 13, lines 15-16 and 22-24), and wherein the pitch of the uneven shape of the protective film is $L=P$ since the convex portion is only formed on and is hence the same size as the electrode fingers being $L_1=p_1$, and the concave portion is only formed on and is hence the same size as the gap between electrode fingers being $L_2=p_2$ (see e.g. the abstract, the last six lines thereof), and thereby correlations $L+P$, $p_1+p_2=P$, $L_1+L_2=L$, $L_1 \leq p_1$ and $L_2 \leq p_2$ are satisfied; and a film thickness of the comb-type electrode is $h=H_m$ that satisfies $t_2=H_m+H_{p1}-H_{p2} \leq H_m$ since the normalized step difference $\Delta H=(H_m+H_{p1}-H_{p2})/2P$ is below 0.01 (see col. 12, lines 34-35 and claim 1) wherein the normalized thickness of the electrodes is up to about 6% (see col. 12, lines 26-29).

Regarding claim 31, as just noted the normalized thickness of the electrode is up to about 6% wherein values between 5% and 6% are within the recited range. Regarding claim 35, since the width of the electrode fingers is equal to the width of the convex portion of the unevenness of the protective film, their respective centers will line up and be on a same straight line perpendicular to the surface of the substrate. Regarding claim 36, the substrate is not lithium tantalate it is lithium tetraborate, and therefore, the remainder of the "if" clause is given no patentable weight. Regarding claim 38, the protective film 18 is silicon dioxide (see e.g. col. 13, lines 31-32).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 36 and 58 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ohkubo et al. U.S. 5,923,231 in view of JP 9-167936 (cited by Applicants).

Assuming that claim 36 were positively written so that it must include a lithium tantalate substrate having a Y-cut angle satisfying $38^{\circ} \leq D^{\circ}$, note that Ohkubo discloses the invention as discussed above, except for such a lithium tantalate substrate or the device being used in electronic equipment which includes an antenna connected to an electronic circuit including the electronic part previously claimed and disclosed as discussed above.

The Examiner takes Official Notice that lithium tantalate substrates would have been extremely well known art recognized alternative piezoelectric substrates in the

surface acoustic wave electronic parts art (see Ohkubo col. 1, lines 28-30 and 64-66), and that using such surface acoustic wave electronic parts in equipment that includes an antenna connected thereto such as filters in an antenna duplexer would have been merely extremely well known intended uses of such devices as evidenced by nearly every reference classified in US class 333, subclass 133 and taken with Ohkubo col. 1, lines 15-18.

JP 9-167936 discloses that it would have been known to increase the cut angle of lithium tantalate above the standard known 36° Y-cut angle (see the abstract) particularly between 38° and 46° (see e.g. claim 9 and page 6, the right hand column, lines 8-9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the electronic part of Ohkubo et al. (see Fig. 7) by having used it in electronic equipment including an antenna connected thereto, and by having replaced the lithium tetraborate substrate with a lithium tantalate substrate with a Y-cut angle equal to or greater than 38 degrees, because such obvious modifications would have been merely an extremely well known intended use of such filters disclosed by Ohkubo et al. (see col. 1, lines 15-18 and US class/subclass 333/133 as evidence), and the mere substitution of a well known art recognized alternative piezoelectric substrate that would have used the same leaky waves as suggested by Ohkubo (see the paragraph spanning cols. 1 and 2 and col. 2, lines 52-60), wherein using the higher Y-cut angle would have provided the advantageous benefits of reduced loss, increased squareness ratio of the passband and high Q as suggested by JP 9-

167936 (see the abstract), and because one of ordinary skill in the art would have been easily capable of using the disclosed equations of Ohkubo (see col. 11 through col. 12) to provided the required thicknesses for the use of the art recognized alternative lithium tantalate substrate in place of a lithium tetraborate substrate.

Allowable Subject Matter

8. Claims 34 and 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ito JP 10-126207 discloses a surface acoustic wave electronic part with a protective film 6 having an uneven surface wherein the thickness of the protective film is h_s and is related to the thickness of the electrodes being h_e , such that their ratio is within a certain range (see e.g. claim 9).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BARBARA SUMMONS whose telephone number is (571)272-1771. The examiner can normally be reached on M-Th, M-Fr.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Pascal can be reached on (571) 271-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

bs
August 29, 2008

/Barbara Summons/
Primary Examiner, Art Unit 2817